Title
A multi-method investigation of the association between emotional clarity and empathy.

Journal
Emotion (Washington, D.C.), 18(5)

ISSN
1528-3542

Authors
Eckland, Nathaniel S
Leyro, Teresa M
Mendes, Wendy Berry
et al.

Publication Date
2018-08-01

DOI
10.1037/emo0000377

Peer reviewed

Emotion

A Multi-Method Investigation of the Association Between Emotional Clarity and Empathy

Nathaniel S. Eckland, Teresa M. Leyro, Wendy Berry Mendes, and Renee J. Thompson

Online First Publication, November 27, 2017. http://dx.doi.org/10.1037/emo0000377

Emotion

1528-3542/17/$12.00 http://dx.doi.org/10.1037/emo0000377

A Multi-Method Investigation of the Association Between Emotional Clarity and Empathy

Nathaniel S. Eckland
Washington University in St. Louis

Teresa M. Leyro
Rutgers University

Wendy Berry Mendes
University of California, San Francisco

Renee J. Thompson
Washington University in St. Louis

Higher emotional clarity, the extent to which people unambiguously identify, label, and describe their own emotions, is related to a host of positive *intra*personal factors but its relation to *inter*personal factors is unexplored. We hypothesized that emotional clarity would be related to cognitive empathy (i.e., perceiving others' emotions) and to accurately understanding others' negative affect (NA), but not positive affect (PA), in the context of a stressful situation. After completing self-reports of trait emotional clarity and cognitive and affective empathy (i.e., one's emotional reaction to others), participants (N = 94 undergraduate students; i.e., perceivers) viewed a series of video clips of adults (i.e., targets) completing a stressful laboratory task in a previous research study. Before and after the stress task, targets reported their state NA and PA. While viewing the recordings, perceivers rated how they thought the targets were feeling at the corresponding time points. Correspondence between perceivers' and targets' affect ratings were used as indices of the outcome variable, performance-based cognitive empathy. As expected, self-reported emotional clarity was related to the self-reported cognitive, but not affective, empathy. Moreover, perceivers' emotional clarity was related to higher cognitive empathy for NA not PA after the stressful task. Our findings provide preliminary support for the importance of emotional clarity in the ability to accurately understand others' affective experiences, which has important interpersonal implications.

Keywords: emotional clarity, empathic accuracy, empathy

Supplemental materials: http://dx.doi.org/10.1037/emo0000377.supp

Emotional clarity is the extent to which people unambiguously identify, label, and describe their own emotions (Gohm & Clore, 2000). Lower emotional clarity is associated with various forms of psychopathology (Vine & Aldao, 2014). Higher emotional clarity is associated with better health and psychological outcomes (Extremera & Fernández-Berrocal, 2006; Koven & Thomas, 2010), as well as a variety of cognitive functions (e.g., better initiation control, self-monitoring, working memory, and other executive functions; Koven & Thomas, 2010). Although the *intra*personal associations of emotional clarity have been widely examined, the *inter*personal outcomes associated with emotional clarity, which we posit are also important to social emotion regulation (Marroquín, 2011), helping behavior (Smith, 2006), and interpersonal relationships, are less understood. As an initial step toward understanding whether emotional clarity has beneficial *inter*personal effects, in the present study, we examine the association between emotional clarity and empathy within a stressful context.

Emotional clarity may be a critical precursor to adaptive emotion regulation (Boden & Thompson, 2015). And although emotional clarity is conceptually related to other facets of emotional experience, including attention to emotion and emotional granularity (i.e., differentiating between emotions; Barrett, Gross, Christensen, & Benvenuto, 2001), empirical investigations have demonstrated that these constructs are unique. For example, a recent meta-analysis found that emotional clarity and attention to emotions are only moderately, positively associated (Boden & Thompson, 2017). In addition, emotional clarity was not significantly related to emotion differentiation in two samples, and emotional clarity and differentiation showed differential relations to other aspects of emotional experience (e.g., affect intensity; Boden, Thompson, Dizén, Berenbaum, & Baker, 2013).

Nathaniel S. Eckland, Department of Psychological & Brain Sciences, Washington University in St. Louis; Teresa M. Leyro, Department of Psychology, Rutgers University; Wendy Berry Mendes, Department of Psychiatry, University of California, San Francisco; Renee J. Thompson, Department of Psychological & Brain Sciences, Washington University in St. Louis.

This research was supported by the Sarlo-Ekman endowment to Wendy Berry Mendes. We thank the research assistants who worked on this project through the Emotion, Health, and Psychophysiology Lab at UCSF for their help in the collection of experimental stimuli.

Correspondence concerning this article should be addressed to Nathaniel S. Eckland, who is now at Department of Psychology, University of Illinois at Urbana-Champaign, 603 East Daniel Street, Champaign, IL 61820. E-mail: eckland2@illinois.edu

Whereas emotional clarity is understanding one's own emotions, empathy involves feeling, sharing, and understanding other people's emotions. Empathy is often cited as a motivation for prosocial behaviors, such as altruism (Batson, 2010); however, systematic study of empathy and its relation to interpersonal outcomes has resulted in equivocal findings partly due to the diverse definitions of empathy. Early research on empathy treated it as a broad construct (Smith, 2006). More recently, researchers have proposed an integrative model of empathy as a process composed of interrelated subcomponents (Hoffman, 2008; Jolliffe & Farrington, 2006; Smith, 2006). This cognitive-affective model of empathy synthesizes several cognitive and affective processes that are viewed as integral for empathy. Cognitive empathy is the ability to understand or infer what others are thinking and feeling. Affective empathy is the emotional response one has to other people's emotional displays (Jolliffe & Farrington, 2006). Cognitive empathy includes processes like empathic accuracy, emotion recognition, and theory of mind, whereas affective empathy includes processes like empathic distress and emotional experience sharing. The cognitive-affective model of empathy integrates one's understanding of others' with one's corollary emotional experiences.

Empathy has been assessed directly through self-report measures or via indirect behavioral or physiological measures. Empathy is typically seen as a socially desirable trait, which may inflate reporting biases, suggesting indirect measures may provide more objective measures of empathy (Fazio & Olson, 2003). One performance-based measure of cognitive empathy, *empathic accuracy*, is indexed as the similarity between a target's self-reported emotions and a perceiver's reports of the target's emotions (Ickes, 2001). Research on empathic accuracy has focused on its associations with broad domains of functioning (e.g., intelligence, global personality; Davis & Kraus, 1997). Only recently, researchers have begun exploring the associations between empathic accuracy and individual differences in emotion-related traits (e.g., negative emotion differentiation; Erbas, Sels, Ceulemans, & Kuppens, 2016). However, the important link between understanding one's own emotions (i.e., emotional clarity) and accurately understanding others' (i.e., empathic accuracy/cognitive empathy) has yet to be addressed.

Emotional clarity and cognitive empathy both involve metaknowledge about emotional experiences: emotional clarity is understanding one's own emotions, whereas cognitive empathy is recognizing and understanding other people's emotions. In contrast, affective empathy is largely experiential in nature. If people are able to accurately identify and describe their own emotional states, this may be a skill that generalizes or shares cognitive-affective mechanisms with the perception of other people's emotions. Emotional clarity and cognitive empathy impact emotional experiences via their focus on knowledge of emotions and share greater conceptual overlap than emotional clarity and affective empathy. For this reason, we expect that emotional clarity will be positively related to cognitive, but not affective, empathy. Although people can have strong emotional reactions to others (i.e., high affective empathy), they may vary in how well they are able to identify or describe their emotional responses (e.g., "I feel really bad for you" [high affective empathy, low emotional clarity] vs. "My heart aches in sadness for you" [high affective empathy, high emotional clarity]). However, people who can accurately identify how they feel, may be able to apply similar skills and clues to discern how others feel as well.

Additionally, if people are high in emotional clarity, they may require less time and cognitive resources to discern their own emotions. According to Zaki's (2014) theory of motivated empathy, when people engage in an empathic interaction, they must determine whether they have the proper cognitive/affective resources to do so. The theory suggests that people can appraise empathy as being too difficult based on the demands of the situation, their own emotional state, and their appraisal of how being empathic will make them feel (e.g., emotionally exhausted). Compared to someone low in emotional clarity, someone high in emotional clarity may be better able to direct their attention to understanding how another person feels and how to respond to the other's emotions. Thus, people high in emotional clarity may have greater cognitive resources available and feel more motivated for distinguishing a target's emotions. Alternatively, people lower in emotional clarity may be spending cognitive resources discerning their own emotional reactions and, consequently, be limited in their ability to dedicate cognitive resources toward understanding a targets' emotions (Vine, Aldao, & Nolen-Hoeksema, 2014).

The central aim of the current study was to examine the association between emotional clarity and empathy. We used self-report measures of trait-level emotional clarity and empathy (both cognitive and affective). We also examined whether participants' (i.e., perceivers') emotional clarity was associated with having more accurate cognitive empathy for video recordings of people (i.e., targets) who were undergoing a standardized stressful laboratory task, the Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993). The present study involved perceivers rating how they thought targets were feeling and comparing these ratings to the targets' self-reports, with greater accuracy reflecting greater cognitive empathy. The stressful context of the task deviates from standard empathic performance/accuracy designs in which perceivers watch targets either recall pleasant or unpleasant memories (e.g., Zaki, Bolger, & Ochsner, 2008) or engage in a marital conflict interaction (e.g., Soto & Levenson, 2009). Our design allowed us to measure both positive affect (PA) and negative affect (NA) during the same stimuli, which is more consistent with real life stressful situations. However, because the task targets were undergoing was stressful, any observed associations between clarity and empathy should be interpreted within a stressful context.

In the present study, our first aim was to test whether self-reported emotional clarity would be significantly related to self-reported cognitive, but not affective, empathy (Hypothesis 1). Our second aim was twofold. First, we tested whether self-reported emotional clarity was positively associated with cognitive empathy assessed using a performance-based measure. Second, we examined cognitive empathy separately by valence of emotion. It may be more socially adaptive and relevant to one's goals to place greater attention on a target's NA in a stressful context because it may prepare one to appropriately give support in real-life stressful situations (Eisenberg & Fabes, 1990; Thompson, Cowan, & Rosenhan, 1980). Accuracy for negative emotional facial expressions has also been found to be higher when the context is also negative (Milanak & Berenbaum, 2014). Therefore, we expected perceivers to have more accurate cognitive empathy performance for NA than PA (Hypothesis 2a). We also hypothesized that emotional clarity would be associated with greater cognitive empathy of NA, not PA (Hypothesis 2b). Negative emotional facial expres-

sions tend to be judged with higher accuracy in negative contexts generally, but specific contextual cues (e.g., priming with a certain emotion word like "anger") have been associated with incorrect identification of other negative facial expressions (e.g., sadness; e.g., Aviezer et al., 2008; Wieser & Brosch, 2012). Thus, in a generally stressful context, emotional clarity may facilitate more nuanced understanding of others' negative emotions. Because PA is unexpected in a stressful context, it may be surprising and become salient (i.e., surprise-attention link; Horstmann, 2015) to all perceivers independent of their emotional clarity.

Method

Participants and Procedure

Our sample (i.e., perceivers) consisted of 94 (68.4% female) undergraduate students at a private Midwestern university. They were 63.2% European American (i.e., white), 7.4% African American, 32.6% Asian American, 5.3% Latino American, and 4.3% indicated another race. Their ages ranged from 17 to 23 (M = 19.34 years, SD = 1.11). Related studies in the literature (e.g., Zaki, Bolger, & Ochsner, 2008; Gadassi, Mor, & Rafaeli, 2011) have found small to moderate associations between personality variables and empathic accuracy. Based on these findings, we determined our sample would be sufficient to detect medium effects with 80% power.

Participants completed individual laboratory sessions that lasted approximately 90 minutes and received research credit for their participation. After providing informed consent, participants completed a series of self-report measures, which were presented in a random order and administered on a computer. Then, following verbal instructions, participants completed the cognitive empathy task. Finally, participants were provided with a verbal debriefing. The study was approved by a university institutional review board.

Self-Report Measures

Emotional clarity. Perceivers' emotional clarity was assessed using a 13-item, empirically derived and validated self-report measure. The items were five reverse-scored items from the difficulty identifying feelings subscale of the Toronto Alexithymia Scale-20 (TAS; Bagby, Parker, & Taylor, 1994) and eight items from the emotional clarity subscale of the Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). The items were recommended by Palmieri, Boden, and Berenbaum (2009) based on the results of a factor analysis. Example items include: "I am often confused about what emotion I am feeling (reverse-scored TAS item)" and "I can't make sense out of my feelings (reverse-scored TMMS item)." Items were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Items were averaged with higher scores representing greater emotional clarity. Internal consistency of the items in the current sample was excellent (α = .92).

Empathy. The 20-item Basic Empathy Scale (Jolliffe & Farrington, 2006) was used to measure perceivers' empathy. The scale includes a 9-item cognitive subscale (e.g., "I have trouble figuring out when my friends are happy") and an 11-item affective subscale (e.g., "I get caught up in other people's feelings easily"). Participants rated the extent to which they agree with each statement on a 5-point scale (1 = *strongly disagree,* 5 = *strongly agree*). Internal consistency was good for the items of the affective subscale (α = .84) and moderate for the cognitive subscale (α = .69).

Performance-Based Measure: Cognitive Empathy

In addition to self-reported empathy, we employed an ecologically valid index of cognitive empathy using a performance-based approach. Participants watched a series of video recordings of people (i.e., targets) completing a stressful laboratory task; a modified Trier Social Stress Task (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). Targets were white, non-Hispanic females (mean age = 24.75, SD = 2.55 years) recruited to participate in another study who consented to their videos being used in future research. For the TSST, targets were instructed that they would be given two minutes to prepare for a 5-minute speech on why they should be hired for their dream job (i.e., prep phase). They were told that they would give the speech to a panel of expert judges (i.e., speech phase) and then answer 5-minute of interview questions posed by the judges (i.e., Q&A phase). After instructions about the speech, the targets immediately began the 2-minute prep phase. The targets were sitting in a chair, connected to psychophysiology equipment and were video-recorded during all three phases of the TSST: the prep, speech, and Q&A. During the speech phase, half the participants were randomly assigned to receive positive feedback from the judges (e.g., smiling, nodding) or negative feedback (e.g., eye rolling, looking uninterested; see Akinola & Mendes, 2008). The feedback conditions served to increase variance in affect, cognition, and physiology across participants. We selected half of the targets from the positive feedback condition and half of the targets from the negative feedback condition. Targets completed self-reports of PA and NA assessed using the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) with three items added for each PA (i.e., cheerful, pleased, happy) and NA (i.e., sad, discouraged, grouchy) after both the prep phase (PA items: α = .94; NA items: α = .78) and Q&A phase (PA items: α = .95; NA items: α = .92).

Perceivers watched four 1-minute video clips from eight targets (i.e., 32 min in total). For each target, perceivers watched the second (i.e., last) minute of the prep phase, the first minute of the speech phase, and the first and last minutes of the Q&A phase. The videos for each target were always presented in chronological order: prep minute 2, speech minute 1, Q&A minute 1, and Q&A minute 5. Targets' footage was presented in three blocks (two blocks of three targets and one block of two targets) with the blocks being presented in random order, using E-Prime (Psychology Software Tools, 2012). Although the parent study recorded both the targets and the judges, for the current investigation, the videos were cropped so that only the target participant could be seen; consequently, perceivers only had access to the targets' responses to the stressful task, not contextual information from the judges.

After viewing each 1-minute video, perceivers made a series of ratings about how they perceived the target to have felt. Perceivers completed ratings for targets' current PA and NA using the same scales the targets used to report on their current PA and NA. Each emotion was displayed individually, with perceivers pressing the corresponding number on the keyboard to submit their rating for each emotion (1 = *not at all*, 5 = *extremely*). The emotion words

were presented in random order. The present paper focuses on ratings made after prep minute 2 (hereafter called prep phase or pre-stressor) and after Q&A minute 5 (hereafter called Q&A phase or post-stressor) that correspond with the targets' self-reported NA and PA. We took the absolute differences between target and perceiver ratings of NA and PA across the eight targets for both prep and Q&A phases; then we averaged these difference scores to compute **cognitive empathy** separately by valence for the prep and Q&A phases. Accuracy scores closer to zero reflected greater accuracy. We will refer to these as cognitive empathy ratings as NA pre-stressor, PA pre-stressor, NA post-stressor, and PA post-stressor.

Results

To aid in interpreting the study's findings detailed below, means and standard deviations for targets and perceivers ratings of targets' affect are reported in Table 1. Importantly, there was high variation in individual differences in performance-based cognitive empathy, ranging from 0 (i.e., perfect accuracy) to 3.10 (i.e., moderate accuracy based on the range [i.e., 0–4] of possible scores).

Hypothesis 1: Is Self-Reported Emotion Clarity Uniquely Related to Self-Reported Cognitive but Not Affective Empathy?

To test our first hypothesis, we conducted Pearson zero-order correlations. As shown in Table 2 and consistent with our hypothesis, we found emotional clarity was significantly related to cognitive empathy, but not affective empathy. We tested whether emotional clarity would show an association with cognitive empathy after taking into account affective empathy (i.e., using a partial correlation). When controlling for affective empathy, the association became even stronger, $r = .36$, $p < .01$.

Hypothesis 2a: Does Performance-Based Cognitive Empathy Vary by Type of Affect?

We conducted a 2 × 2 (affect: PA, NA; time of rating: pre-stressor, post-stressor) repeated measures analysis of variance (ANOVA) of cognitive empathy. We found a main effect for affect, $F(1, 93) = 17.04$, $p < .01$, and the time of rating, $F(1, 93) = 15.06$, $p < .01$. As expected, performance-based cognitive empathy for NA was higher than for PA, and ratings made after the stressor were more accurate than ratings made after prep. There was also a significant interaction between affect and time of rating, $F(1, 93) = 7.52$, $p < .01$. This interaction indicates that depending on the time of the ratings, PA and NA were rated differently. To interpret this interaction, we graphed the estimated marginal means. As shown in Figure 1, the interaction effect reflects the highest accuracy (closest to 0) is achieved when rating NA post-stressor.

Table 2
Pearson Correlations Between Self-Report Measures of Emotional Clarity and Empathy

Measure	1	2	3
1. Emotional clarity	—		
2. Cognitive empathy	.27*	—	
3. Affective empathy	−.07	.51*	—
Mean (*SD*)	3.49 (.69)	4.04 (.41)	3.65 (.61)

* $p < .05$.

Hypothesis 2b: Is Emotional Clarity Positively Associated With More Accurate Cognitive Empathy of NA, but Not PA?

Next, we tested whether emotional clarity was associated with more accurate cognitive empathy in a stressful context using regression models for cognitive empathy of PA and NA for prep and Q&A phases. As expected, emotional clarity did not predict more accurate empathic performance for PA at either phase (See Table 3 for a summary of the models). Inconsistent with Hypothesis 2b, emotional clarity did not predict higher accuracy of NA pre-stressor. Emotional clarity was, however, significantly associated with greater cognitive empathy for NA post-stressor, $b = -.15$, $p = .02$.

Discussion

Emotional clarity is empirically linked to several important *intra*personal outcomes, but its associations with *inter*personal outcomes are largely unexplored. To understand the utility of higher emotional clarity in promoting interpersonal relationships, using a multimethod approach, we examined the relation between emotional clarity and affective and cognitive empathy. Consistent with our expectations, we found that emotional clarity was posi-

Table 1
Descriptives of Targets' Affect, Perceivers' Ratings of Targets' Affect, and Perceivers' Cognitive Empathy

	Targets' self-reported affect		Perceivers' ratings of targets' affect		Perceiver's performance-based cognitive empathy	
Measure	Mean (*SD*)	Range	Mean (*SD*)	Range	Mean (*SD*)	Range
Pre-stressor						
PA	2.80 (.64)	2.20–4.10	2.23 (.78)	1.00–5.00	.935 (.701)	0–3.10
NA	1.68 (.51)	1.10–2.80	2.09 (.79)	1.00–4.40	.790 (.612)	0–2.90
Post-stressor						
PA	2.87 (.80)	1.80–3.90	2.86 (.76)	1.00–5.00	.886 (.613)	0–2.90
NA	1.33 (.38)	1.00–2.10	1.79 (.70)	1.00–4.20	.647 (.615)	0–3.10

Note. PA = positive affect; NA = negative affect; Pre-stressor = Ratings made after Preparation portion of the TSST; Post-stressor = Ratings made after Question and Answer portion of the TSST. Cognitive empathy was calculated by taking the absolute difference between perceiver and target ratings.

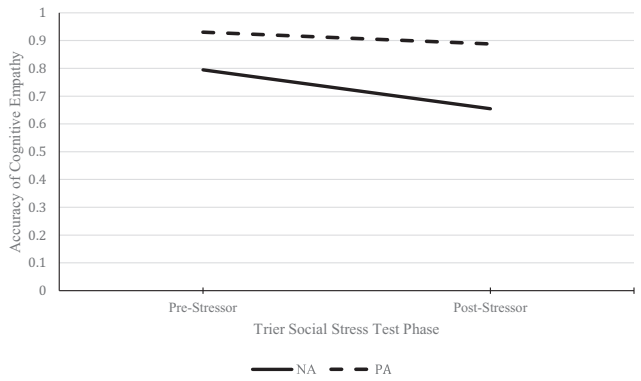

Figure 1. Trier social stress test phase by affect valence predicting performance-based cognitive empathy. Responses closer to 0 indicate greater accuracy. PA = positive affect; NA = negative affect.

tively associated with cognitive empathy, one form of empathy that is associated with social functioning (Smith, 2006). Further, in a performance-based task in which perceivers rated targets' affect after targets went through a stressful experience, we found that perceiver's emotional clarity was positively associated with accuracy in perceiving targets' NA. These findings provide evidence using various methods that higher emotional clarity is related to being a more accurate judge of others' emotions.

We found support that self-reported emotional clarity was associated with cognitive, but not affective, empathy (Hypothesis 1). We also found that self-reported emotional clarity was positively associated with cognitive empathy using a performance-based measure. Our results across multiple methods suggest that emotional clarity has a unique association with specific empathic processes, not a general relation to empathy. Emotional clarity and cognitive empathy may be associated because both constructs involve identifying and describing emotional experiences—of oneself for emotional clarity and of others for cognitive empathy. In addition, neural mechanisms implicated in the experience of emotional clarity and cognitive empathy may overlap (Larsen, Brand, Bermond, & Hijman, 2003), such as the ventrolateral prefrontal cortex, which shows activation during affect labeling tasks (Lieberman, Inagaki, Tabibnia, & Crockett, 2011).

Certain subcomponents of affective empathy (i.e., emotional experience sharing) may impact the relationship between emotional clarity and cognitive empathy. For example, if a perceiver is sharing in a target's affective experience (emotional experience sharing) and the perceiver has clarity on their own emotional state (emotional clarity), then the perceiver should know how the target is feeling (cognitive empathy). This may only hold for people high in these traits and suggests that people have accurate knowledge that they are sharing in an experience (which suggests more cognitive empathy is also involved). Using our data, we tested the hypothesis that association between emotional clarity and cognitive empathy depends on affective empathy (see online supplement for more information).

In addition to a self-report measure of empathy, we administered a performance-based measure of cognitive empathy. This performance-based measure allowed us to assess cognitive empathy separately for NA and PA, which was not possible with the self-report measure. Although perceivers' accuracy for both NA and PA was quite high, accuracy of NA was higher than accuracy of PA, as we expected (Hypothesis 2a). In stressful interpersonal situations, understanding others' NA, rather than PA, should be more interpersonally advantageous (Thompson, Cowan, & Rosenhan, 1980). Of course, it might be the case that there was simply more NA expressed from the targets than PA in the context of the chosen paradigm. Yet, understanding how others feel, a component of emotional attunement (Gottman, 2011), may be interpersonally beneficial especially in a stressful context. For example, one might better respond to the other person's needs, which is an integral part of building trust in relationships (e.g., marriages; Gottman, 1994, 2011).

Finally, we examined the relation between emotional clarity and performance-based cognitive empathy separately for NA and PA (Hypothesis 2b). We expected emotional clarity to be associated with cognitive empathy of NA not PA in a stressful context. Consistent with this, emotional clarity was positively associated with accurate cognitive empathy of NA after the TSST stressor. One possible explanation for why emotional clarity would more strongly relate to empathy for NA, but not PA, is the *understanding/cognitive* component of empathy for PA and empathy for NA may differ. In the English language, there are more words for NA than PA (Averill, 1975), so cognitive empathy of NA may be much more difficult than cognitive empathy of PA. In general, it may be easier for people to engage in empathy for PA than NA, which may help explain why emotional clarity would predict empathy of NA, but not PA.

Recent research suggests emotional clarity varies by valence. For example, people with major depressive disorder, a condition associated with lower trait emotional clarity (Brockmeyer et al., 2012), evidence lower emotional clarity of NA, but not PA (Thompson et al., 2015). Future research may benefit from further clarifying the link between emotional clarity and empathy by examining emotion clarity by valence and empathy in positive and negative contexts. In fact, recent theories and evidence suggest empathy for PA is a distinct construct/process than empathy for NA (Morelli, Lieberman, & Zaki, 2015). For example, empathy for PA is characterized as an ability to share, understand, and celebrate/enjoy other's positive emotions, and is related to distinct outcomes (e.g., feeling warmth, PA, and socially connected) that

Table 3
Linear Models of Self-Reported Emotional Clarity Predicting Performance-Based Measure of Cognitive Empathy

Measure	*b*	*SE*	β	R^2	*p*
PA accuracy: Pre-stressor					
Intercept	.77	.16			.001
Emotional clarity	.05	.04	.110	.012	.292
NA accuracy: Pre-stressor					
Intercept	.94	.17			.001
Emotional clarity	−.04	.05	−.094	.009	.368
PA accuracy: Post-stressor					
Intercept	.89	.11			.001
Emotional clarity	.01	.03	.002	.000	.986
NA accuracy: Post-stressor					
Intercept	1.19	.23			.001
Emotional clarity	−.15	.07	−.241	.058	.019

Note. PA = positive affect; NA = negative affect; Pre-stressor = accuracy after preparation phase; Post-stressor = accuracy after question and answer phase.

are not necessarily associated with empathy for NA. Our findings align with and expand on this work by suggesting emotional clarity has implications for empathy of NA but not PA.

Given that we only tested the association between emotional clarity and cognitive empathy in a stressful situation, our results should be interpreted within that context however. It may be possible that the association between emotional clarity and cognitive empathy may differ in other contexts (e.g., pleasant situations, neutral social interactions). That is, in pleasant, nonstressful contexts, researchers could find an opposite pattern of results (i.e., emotional clarity related to empathy for PA, not NA) because NA would stand out in a pleasant context, independent of emotional clarity. Or emotional clarity may not be related to cognitive empathy in pleasant contexts because the stakes for having accurate empathy are lower. For these reasons, future research should test the association between emotional clarity and empathy by valence across other contexts.

It is also important to note that the significant association between emotional clarity and cognitive empathy of NA after the stressor was relatively small. This is not surprising given that self-report and implicit/performance measures rarely tend to correlate strongly (Fazio & Olson, 2003). Related research in the emotional intelligence literature, which includes aspects of emotional understanding (i.e., emotional clarity) and emotion recognition/perception (i.e., aspects of cognitive empathy; Salovey et al., 1995), demonstrates self-reported emotional intelligence is weakly positively related to performance-based measures of emotional intelligence (e.g., Mayer-Salovey-Caruso Emotional Intelligence Test; Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006). Thus, the results of our study are consistent with related extant research.

Our result that higher emotional clarity is associated with more accurate cognitive empathy has important clinical and real-world implications. Low emotional clarity is found across a variety of psychological disorders (Vine & Aldao, 2014) and improving emotional clarity is often part of many psychological treatments (e.g., trauma-focused cognitive–behavioral therapy [Cohen, Berliner, & Mannarino, 2010], mindfulness-based cognitive therapy [Kabat-Zinn, 2003]). Because our study was cross-sectional in design, we cannot examine directionality of the observed associations. Increasing emotional clarity might improve people's ability to navigate their social world through increased cognitive empathy, or increasing cognitive empathy may help to improve emotional clarity, or the emotional clarity and cognitive empathy may be bidirectionally related. In addition, emotional clarity may also help one regulate others' emotions in real life stressful situations, specifically through enhanced cognitive empathy. People high in emotional clarity may be able to identify and describe others' emotions more accurately and respond in more context-appropriate ways. Future work should expand on the social implications for emotional clarity, including its role in interpersonal emotion regulation (Zaki & Williams, 2013).

Limitations and Future Directions

Although the current study presents initial evidence that emotional clarity relates to cognitive empathy and empathic performance, our study design has limitations. First, theoretically relevant findings suggested a small to medium size association between emotional clarity and cognitive empathy. Given the small effect size we observed for our main finding, future studies should attempt to replicate this effect with larger samples. Second, the targets were all white women, which allowed us to keep the race of the targets constant but had the disadvantage of the targets not being racially representative of the United States population. Because our sample was undergraduate students, we chose the targets to be close in age as previous research has shown empathy is greatest for people within the same age group (Hoffman, 2008). However, it will be important for future research to examine perceivers who are older. Second, although we showed videos from the prep phase, speech phase, as well as the first and last minutes of the Q&A phase from the TSST, we could only calculate performance-based cognitive empathy from ratings made at the prep (i.e., pre-stressor) and final Q&A phases (i.e., post-stressor). This is because we wanted to make one-to-one comparisons between targets' and perceivers' ratings and targets only rated their emotions immediately before and after the TSST. It was not possible to have targets rate their emotions every minute without disturbing the procedures of the task.

Additionally, there are two limitations associated with our assessment of affective empathy. First, our behavioral task did not measure affective empathy, so it will be important for future research using behavioral tasks to do so. For example, researchers could assess perceivers' reactions to targets by filming their reactions to watching targets and coding facial expressions (e.g., Facial Action Coding System; Ekman, Friesen, & Hager, 2002) or using facial electromyography to obtain measures of facial mimicry. Second, although we administered an affective empathy self-report measure (Jolliffe & Farrington, 2006), the measure does not delineate components of affective empathy, such as emotional experience sharing and empathic distress. The current study begins to elucidate the association between emotional clarity and cognitive and affective empathy, but future studies would benefit by measuring perceiver's emotional reactions to targets.

Conclusions

Using a multimethod approach, we were able to demonstrate a unique relation between emotional clarity and cognitive empathy within a stressful context. We found an association between our participants' emotional clarity and their empathic performance on a difficult task. Participants could discern, with high accuracy, the emotions of *strangers* in video recordings. We expect that the association between emotional clarity and empathic performance would be even stronger in in-person interactions and with people who know each other. This relation is important because it may reflect shared mechanisms for understanding one's own feelings and understanding how others feel, which may help maintain healthy relationships.

References

Akinola, M., & Mendes, W. B. (2008). The dark side of creativity: Biological vulnerability and negative emotions lead to greater artistic creativity. *Personality and Social Psychology Bulletin, 34,* 1677–1686. http://dx.doi.org/10.1177/0146167208323933

Averill, J. R. (1975). A semantic atlas of emotional concepts. *JSAS: Catalog of Selected Documents in Psychology, 5,* 330.

Aviezer, H., Hassin, R. R., Ryan, J., Grady, C., Susskind, J., Anderson, A., . . . Bentin, S. (2008). Angry, disgusted, or afraid? Studies on the malleability of emotion perception. *Psychological Science, 19,* 724–732. http://dx.doi.org/10.1111/j.1467-9280.2008.02148.x

Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale—I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research, 38,* 23–32. http://dx.doi.org/10.1016/0022-3999(94)90005-1

Barrett, L. F., Gross, J., Christensen, T. C., & Benvenuto, M. (2001). Knowing what you're feeling and knowing what to do about it: Mapping the relation between emotion differentiation and emotion regulation. *Cognition and Emotion, 15,* 713–724. http://dx.doi.org/10.1080/02699930143000239

Batson, C. D. (2010). Empathy-induced altruistic motivation. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 15–34). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/12061-001

Boden, M. T., & Thompson, R. J. (2015). Facets of emotional awareness and associations with emotion regulation and depression. *Emotion, 15,* 399–410. http://dx.doi.org/10.1037/emo0000057

Boden, M. T., & Thompson, R. J. (2017). Meta-analysis of the association between emotional clarity and attention to emotions. *Emotion Review, 9,* 79–85. http://dx.doi.org/10.1177/1754073915610640

Boden, M. T., Thompson, R. J., Dizén, M., Berenbaum, H., & Baker, J. P. (2013). Are emotional clarity and emotion differentiation related? *Cognition and Emotion, 27,* 961–978. http://dx.doi.org/10.1080/02699931.2012.751899

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology, 91,* 780–795. http://dx.doi.org/10.1037/0022-3514.91.4.780

Brockmeyer, T., Bents, H., Holtforth, M. G., Pfeiffer, N., Herzog, W., & Friederich, H. C. (2012). Specific emotion regulation impairments in major depression and anorexia nervosa. *Psychiatry Research, 200,* 550–553. http://dx.doi.org/10.1016/j.psychres.2012.07.009

Cohen, J. A., Berliner, L., & Mannarino, A. (2010). Trauma focused CBT for children with co-occurring trauma and behavior problems. *Child Abuse & Neglect, 34,* 215–224. http://dx.doi.org/10.1016/j.chiabu.2009.12.003

Davis, M. H., & Kraus, L. A. (1997). Personality and empathic accuracy. In W. Ickes (Ed.), *Empathic accuracy* (pp. 144–168). New York, NY: Guilford Press.

Eisenberg, N., & Fabes, R. A. (1990). Empathy: Conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion, 14,* 131–149. http://dx.doi.org/10.1007/BF00991640

Ekman, P., Friesen, W. V., & Hager, J. C. (2002). *Facial Action Coding System*. Salt Lake City, UT: Network Information Research.

Erbas, Y., Sels, L., Ceulemans, E., & Kuppens, P. (2016). Feeling me, feeling you: The relation between emotion differentiation and empathic accuracy. *Social Psychological and Personality Science, 7,* 240–247. http://dx.doi.org/10.1177/1948550616633504

Extremera, N., & Fernández-Berrocal, P. (2006). Emotional intelligence as predictor of mental, social, and physical health in university students. *The Spanish Journal of Psychology, 9,* 45–51. http://dx.doi.org/10.1017/S1138741600005965

Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition. research: Their meaning and use. *Annual Review of Psychology, 54,* 297–327. http://dx.doi.org/10.1146/annurev.psych.54.101601.145225

Gadassi, R., Mor, N., & Rafaeli, E. (2011). Depression and empathic accuracy in couples: An interpersonal model of gender differences in depression. *Psychological Science, 22,* 1033–1041. http://dx.doi.org/10.1177/0956797611414728

Gohm, C. L., & Clore, G. L. (2000). Individual differences in emotional experience: Mapping scales to processes. *Personality and Social Psychology Bulletin, 26,* 679–697. http://dx.doi.org/10.1177/0146167200268004

Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Hillsdale, NJ: Erlbaum.

Gottman, J. M. (2011). *The science of trust: Emotional attunement for couples*. New York, NY: W. W. Norton & Company.

Hoffman, M. L. (2008). Empathy and prosocial behavior. In M. Lewis, J. M. Haviland-Jones, & L. Feldman Barrett (Eds.), *Handbook of emotions* (Vol. 3, pp. 440–455). New York, NY: Guilford.

Horstmann, G. (2015). The surprise-attention link: A review. *Annals of the New York Academy of Sciences, 1339,* 106–115. http://dx.doi.org/10.1111/nyas.12679

Ickes, W. (2001). Measuring empathic accuracy. In J. A. Hall & F. J. Bernieri (Eds.), *Interpersonal sensitivity: Theory and measurement* (pp. 219–241). Mahwah, NJ: Erlbaum.

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence, 29,* 589–611. http://dx.doi.org/10.1016/j.adolescence.2005.08.010

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10,* 144–156. http://dx.doi.org/10.1093/clipsy.bpg016

Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The 'Trier Social Stress Test'—a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology, 28,* 76–81. http://dx.doi.org/10.1159/000119004

Koven, N. S., & Thomas, W. (2010). Mapping facets of alexithymia to executive dysfunction in daily life. *Personality and Individual Differences, 49,* 24–28. http://dx.doi.org/10.1016/j.paid.2010.02.034

Larsen, J. K., Brand, N., Bermond, B., & Hijman, R. (2003). Cognitive and emotional characteristics of alexithymia: A review of neurobiological studies. *Journal of Psychosomatic Research, 54,* 533–541. http://dx.doi.org/10.1016/S0022-3999(02)00466-X

Lieberman, M. D., Inagaki, T. K., Tabibnia, G., & Crockett, M. J. (2011). Subjective responses to emotional stimuli during labeling, reappraisal, and distraction. *Emotion, 11,* 468–480. http://dx.doi.org/10.1037/a0023503

Marroquín, B. (2011). Interpersonal emotion regulation as a mechanism of social support in depression. *Clinical Psychology Review, 31,* 1276–1290. http://dx.doi.org/10.1016/j.cpr.2011.09.005

Milanak, M. E., & Berenbaum, H. (2014). The effects of context on facial affect recognition. *Motivation and Emotion, 38,* 560–568. http://dx.doi.org/10.1007/s11031-014-9401-x

Morelli, S. A., Lieberman, M. D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass, 9,* 57–68. http://dx.doi.org/10.1111/spc3.12157

Palmieri, P. A., Boden, M. T., & Berenbaum, H. (2009). Measuring clarity of and attention to emotions. *Journal of Personality Assessment, 91,* 560–567. http://dx.doi.org/10.1080/00223890903228539

Psychology Software Tools, Inc. [E-Prime 2.0]. (2012). Retrieved from http://www.pstnet.com

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. P. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the trait meta-mood scale. In J. Pennebaker (Ed.), *Emotion, disclosure, & health* (pp. 125–154). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/10182-006

Smith, A. (2006). Cognitive empathy and emotional empathy in human behavior and evolution. *The Psychological Record, 56,* 3–21.

Soto, J. A., & Levenson, R. W. (2009). Emotion recognition across cultures: The influence of ethnicity on empathic accuracy and physiological linkage. *Emotion, 9,* 874–884. http://dx.doi.org/10.1037/a0017399

Thompson, R. J., Kuppens, P., Mata, J., Jaeggi, S. M., Buschkuehl, M., Jonides, J., & Gotlib, I. H. (2015). Emotional clarity as a function of neuroticism and major depressive disorder. *Emotion, 15,* 615–624. http://dx.doi.org/10.1037/emo0000067

Thompson, W. C., Cowan, C. L., & Rosenhan, D. L. (1980). Focus of attention mediates the impact of negative affect on altruism. *Journal of*

Personality and Social Psychology, 38, 291–300. http://dx.doi.org/10.1037/0022-3514.38.2.291

Vine, V., & Aldao, A. (2014). Impaired emotional clarity and psychopathology: A transdiagnostic deficit with symptom-specific pathways through emotion regulation. *Journal of Social and Clinical Psychology, 33,* 319–342. http://dx.doi.org/10.1521/jscp.2014.33.4.319

Vine, V., Aldao, A., & Nolen-Hoeksema, S. (2014). Chasing clarity: Rumination as a strategy for making sense of emotions. *Journal of Experimental Psychopathology, 5,* 229–243. http://dx.doi.org/10.5127/jep.038513

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070. http://dx.doi.org/10.1037/0022-3514.54.6.1063

Wieser, M. J., & Brosch, T. (2012). Faces in context: A review and systematization of contextual influences on affective face processing. *Frontiers in Psychology, 3,* 471. http://dx.doi.org/10.3389/fpsyg.2012.00471

Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin, 140,* 1608–1647. http://dx.doi.org/10.1037/a0037679

Zaki, J., Bolger, N., & Ochsner, K. (2008). It takes two: The interpersonal nature of empathic accuracy. *Psychological Science, 19,* 399–404. http://dx.doi.org/10.1111/j.1467-9280.2008.02099.x

Zaki, J., & Williams, W. C. (2013). Interpersonal emotion regulation. *Emotion, 13,* 803–810. http://dx.doi.org/10.1037/a0033839

Received September 24, 2016
Revision received August 16, 2017
Accepted August 24, 2017 ■